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Exploring Students' Perceptions of Using Gemini AI in Writing Skills

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ABSTRACT

This study explores vocational high school students' perceptions of using Gemini AI as an AI-assisted writing tool in developing writing skills. Writing remains a major challenge for English as a Foreign Language EFL learners due to issues with grammar, vocabulary, organization, and coherence. With the emergence of AI technologies, tools like Gemini AI offer real-time feedback and adaptive support for improving writing performance. Using a quantitative descriptive approach, this research involved 26 vocational high school students who had experience using Gemini AI in writing activities. Data were collected via a structured questionnaire containing 16 Likert-scale items focusing on various aspects of writing, such as grammar, content organization, vocabulary use, and writing confidence. The results show that students generally held positive perceptions of Gemini AI, particularly in grammar correction, vocabulary enhancement, and motivation to revise. However, some expressed concerns about dependency and limited critical engagement. This study highlights the potential of Gemini AI to complement classroom instruction and enhance learner autonomy, especially in under-resourced EFL settings. The findings contribute to the growing literature on AI in language education and provide practical implications for educators integrating intelligent writing tools.

Keywords: AI writing tool; Gemini AI; writing perception; EFL students; language technology

Introduction

Writing is a fundamental part of learning a language, especially in English as a Foreign Language EFL settings. It is more than just a way to practice grammar or vocabulary it helps students think critically, express ideas clearly, and connect their thoughts in meaningful ways. Through writing, learners reflect on what they know, explore new perspectives, and build confidence in communicating their understanding. Kim et al. 2021 explain that writing strengthens students' ability to analyze and synthesize information, which supports deeper learning across disciplines. In a similar view, Gultom et al. (2022) emphasize that writing helps learners internalize knowledge and develop autonomy by organizing their ideas and expressing them in a structured form. These insights show that writing is not just a technical skill, but a powerful tool for academic growth and personal development.

Writing remains one of the most challenging skills for EFL learners to master, despite its central role in language development. Students frequently encounter difficulties in constructing logical arguments, applying accurate grammar, selecting appropriate

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vocabulary, and organizing their ideas into coherent texts (Fitria & Malik, 2022). These challenges are often intensified by the limited availability of timely feedback and individualized guidance, two factors that play a crucial role in helping learners revise and improve their writing. According to Tabib (2022), effective writing instruction requires not only linguistic input but also cognitive scaffolding that supports learners through each stage of text production. Without such support, many students struggle to develop their initial drafts into clear, well-structured, and academically appropriate written work.

To address the ongoing challenges students face in writing, Gemini AI has emerged as an innovative tool that offers comprehensive support across various stages of the writing process. Developed by Google, Gemini AI delivers real-time, adaptive feedback aimed at enhancing grammar, vocabulary use, and content organization. According to Alharbi (2023), students benefit most from writing tools that provide contextualized and timely guidance, enabling them to revise more effectively and independently. Similarly, Rugaiyah (2023) highlights that tools like Gemini AI do more than correct surface-level errors; they also support coherence, lexical precision, and the development of well-structured arguments. Unlike conventional grammar checkers, Gemini AI adapts to the user's writing intent and tone, offering suggestions that are personalized and pedagogically meaningful. Its interactive features promote greater learner autonomy and confidence, positioning it as a responsive and empowering writing companion.

Understanding students' perceptions of Gemini AI is crucial, as their interaction with this tool can significantly shape their motivation, confidence, and overall development as writers. Gemini AI has been designed to assist learners in multiple dimensions of writing, including grammar correction, vocabulary enhancement, and text organization. However, as noted by Sumakul et al. (2022), the perceived usefulness of AI tools plays a crucial role in determining how effectively students engage with them during the writing process. While Gemini AI shows promise, current research rarely investigates its implementation in secondary education settings. Most existing studies overlook how high school students experience this tool when applied to authentic writing tasks. This study aims to address that gap by exploring students' perceptions of Gemini AI in improving their writing performance. Burkhard (2022) emphasizes that when writing tools support coherence and personalized guidance, they can positively affect learners' confidence and output quality. Therefore, this research focuses on how Gemini AI contributes to improving grammar accuracy, enhancing vocabulary development, refining content structure, and fostering writing self-assurance. The insights gained are expected to inform instructional practices and support more meaningful integration of Gemini AI into English as a Foreign Language EFL writing instruction.

Literature Review

Writing is often regarded as one of the most cognitively demanding skills in language learning, particularly for students in English as a Foreign Language (EFL) context.

According to Durga and Rao (2018), writing is a complex cognitive activity that requires a higher level of competence than the other three English language skills. In line with this, Sartika et al. (2023) emphasized that students must develop strong writing skills because writing is a crucial means of communication despite being one of the most challenging competencies to master.

Unlike receptive skills such as listening and reading, writing requires learners to actively generate ideas, organize them coherently, and convey them using accurate grammar and appropriate vocabulary. Jiang and Kalyuga (2022) note that many students struggle with this process, particularly when they do not receive timely feedback or personalized guidance. In response to these challenges, recent advancements in educational technology have introduced artificial intelligence (AI) as a promising support tool in writing instruction. AI-based writing tools are increasingly acknowledged for their capacity to deliver real-time, individualized feedback that assists students throughout the various stages of the writing process (Tseng & Warschauer, 2023).

Among these tools, Gemini AI, developed by Google, has gained attention for its capacity to support students not only in correcting errors but also in improving deeper aspects of writing, such as coherence, vocabulary usage, and argument development. What makes Gemini AI particularly valuable is its adaptive design. It responds to the writer's intent and context, offering feedback that feels more like guidance than correction. According to Jupalli et al. (2022), tools like Gemini AI assist students in building stronger and more logical text structures while also supporting clarity of thought. Similarly, Taşkiran (2022) found that students who receive timely and targeted feedback through AI tools demonstrate increased confidence and motivation to revise their work, key components of writing development.

Theoretically, Gemini AI aligns with sociocognitive views of learning, particularly Vygotsky's 1978 concept of the Zone of Proximal Development (ZPD), which emphasizes the role of guided support in helping learners reach their potential. In this framework, tools like Gemini AI can act as scaffolding, providing just enough assistance to help students complete tasks they might not be able to accomplish independently. As Muamanah (2020) explains, meaningful learning occurs when learners engage with guidance that challenges and extends their current abilities. In this way, Gemini AI serves not only as a technical assistant but also as a pedagogical tool that nurtures growth and independence through iterative writing practice.

However, despite growing interest in AI-assisted writing, most existing studies have focused on university-level learners or more popular tools such as Gemini AI, Grammarly, and ChatGPT (Roe et al. 2023). There is a noticeable gap in the literature regarding how secondary school students, particularly those in EFL settings, experience and perceive the use of Gemini AI. Their voices are rarely heard in discussions about AI integration in writing instruction, leaving educators with limited data on how effective and accessible these tools are for younger learners.

In response to this gap, the present study aims to explore high school students' perceptions of using Gemini AI to improve their writing skills. This includes examining how they view the tool's effectiveness in supporting grammar accuracy, vocabulary development, content organization, and overall writing confidence. By understanding their experiences, this study hopes to contribute both theoretical insight and practical recommendations for integrating AI tools meaningfully into EFL writing classrooms.

Method

This study employed a descriptive quantitative method to investigate senior high school students' perceptions of using Gemini AI in writing instruction. The quantitative descriptive approach was chosen to capture detailed, real-life experiences from the participants' point of view without abstract interpretation (Apriliana & Basikin, 2021). This design is suitable for exploring attitudes, preferences, and behavioral patterns associated with educational technology use.

A total of 26 vocational high school students participated in this study. These students were selected using purposive sampling based on their prior exposure to Gemini AI during writing-related tasks. All participants had experience using the tool in the classroom or independent writing activities, ensuring the relevance of their responses to the research questions.

Data collection was conducted using a structured questionnaire distributed via Google Forms. The questionnaire consisted of 16 Likert-scale items ranging from "strongly disagree" to "strongly agree." The items focused on students' perceptions of Gemini AI's usefulness, ease of use, and its perceived impact on grammar accuracy, vocabulary development, idea generation, content organization, and writing confidence. This instrument was adapted from previous validated surveys in digital writing research (Amani & Bisriyah, 2025)

Responses were analyzed using descriptive statistics, including frequencies, means, and standard deviations. This approach enabled the researcher to identify general trends and highlight the most and least positively perceived features of Gemini AI. Ethical considerations were upheld throughout the study: participants were informed of the research purpose, provided consent, and were assured of anonymity and confidentiality in accordance with ethical standards for educational research.

To ensure the reliability of the questionnaire, a reliability test using Cronbach's Alpha was conducted. The result of the analysis yielded a value of 0.904, which indicates that the instrument has high internal consistency.

Table 4.

Reliability Statistics

Cronbach's Alpha	N of Items
0.904	16

Result and Discussion

This study investigated students' perceptions of using Gemini AI to support their writing skills. Data were collected from 26 vocational high school students through a 16-item Likert-scale questionnaire, with responses ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). The total perception score was calculated by summing all item responses.

The descriptive statistical analysis revealed that the total perception scores ranged from 28.00 to 76.00, with a mean of 56.81 and a standard deviation of 10.53. These results indicate that students generally had a positive perception of Gemini AI. The complete result of the descriptive analysis is presented in Table 1.

Table 1

Descriptive Statistics of Total Perception Score

Measure	Total Perception
Mean	56.81
Standard Deviation	10.53
Minimum	28.00
Maximum	76.00

To interpret the results more meaningfully, the total perception scores were categorized into four levels: Very Positive (64–80), Positive (48–63), Neutral (32–47), and Negative (16–31). As shown in Table 2, 61.5% of students had positive perceptions, 26.9% had very positive, 7.7% had neutral, and only 3.8% had negative perceptions.

Table 2

Categorization of Student Perception

Category	Frequency	Percentage
Very Positive	7	26.9%
Positive	16	61.5%
Neutral	2	7.7%
Negative	1	3.8%

These results indicate that 88.4% of students perceived Gemini AI positively, suggesting that it is well-received and considered a valuable tool in supporting writing tasks.

Further analysis was conducted to identify which aspects of Gemini AI students appreciated most. The item with the highest mean score was Q12 (*"I feel confident revising my writing with Gemini AI"*) with a mean of 4.15. This was followed by Q4 (*"Gemini helps*

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me improve my grammar accuracy") with a mean of 4.04, and Q1 (*"Gemini helps me generate ideas when writing"*) with a mean of 3.73. These are presented in Table 3.

Table 3

The Highest Mean Scores per Item

Item	Statement	Mean
Q12	I feel confident revising my writing with Gemini AI.	4.15
Q4	Gemini helps me improve my grammar accuracy.	4.04
Q1	Gemini helps me generate ideas when writing.	3.73

These findings suggest that students value Gemini AI most for its ability to enhance their confidence, grammar accuracy, and idea generation. This is supported by Hyland (2003), who argues that *"confidence in writing develops when learners feel supported by clear, constructive feedback that helps them take control of their texts."* Gemini AI appears to fulfill this role, offering timely feedback that empowers students to revise their writing independently.

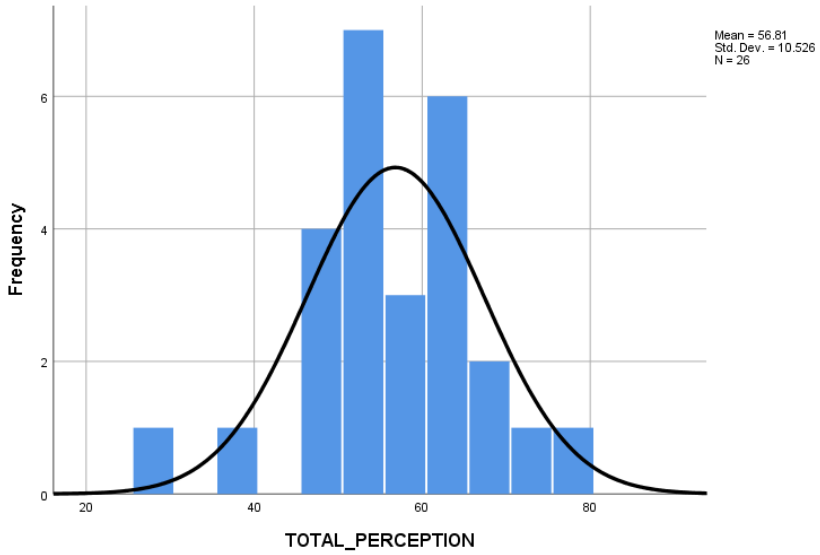
The importance of grammar support in writing was further confirmed by students' responses to Q4. This aligns with the findings of Li and Mak (2022), who noted that *"adaptive feedback from AI systems significantly improves learners' grammatical accuracy by highlighting errors and suggesting real-time corrections."* Similarly, the usefulness of Gemini AI in idea generation, as indicated by Q1, reflects its role in helping students overcome writer's block—a common problem among EFL learners.

This can also be explained through Vygotsky's (1978) Zone of Proximal Development (ZPD) theory, which emphasizes the role of scaffolding in helping learners perform tasks slightly beyond their current abilities. In this context, Gemini AI serves as a digital scaffold, providing real-time assistance that guides students through the writing process, from idea development to editing and revision.

Additionally, a histogram of the total perception scores revealed a slightly right-skewed distribution, indicating that most students' scores were clustered around the mid to high range. This further confirms the overall positive sentiment toward the use of Gemini AI in writing (see Figure 1).

Figure 1

Histogram of Total Perception Scores



Despite the largely positive results, one participant expressed a negative perception. This may be attributed to individual differences in digital literacy, access to technology, or learning preferences. As Godwin-Jones (2018) noted, *"the effectiveness of digital tools in education largely depends on how they are introduced and supported within the learning environment."* This underscores the need for adequate orientation, training, and support to ensure that all students can benefit from AI-powered writing tools.

In conclusion, the overall analysis suggests that Gemini AI is perceived positively by students and is particularly appreciated for its ability to enhance writing confidence, grammar, and idea generation. It can serve as an effective supplementary tool in writing instruction, especially in EFL classrooms with limited teacher feedback.

Conclusion

The findings of this study reveal that vocational high school students hold predominantly positive perceptions toward the use of Gemini AI in enhancing their writing skills. The analysis showed that the average total perception score was 56.81, with most

students categorized as having positive 61.5% or very positive 26.9% responses. This suggests that Gemini AI is generally well-received by learners.

Students particularly appreciated Gemini AI's role in improving grammar accuracy, generating writing ideas, and boosting their confidence during the revision process. The tool's ability to provide real-time, adaptive, and personalized feedback supports its effectiveness as a learning aid in writing instruction.

These results align with previous studies highlighting the value of AI in promoting learner autonomy, enhancing accuracy, and fostering self-assurance in writing. With appropriate support and integration, Gemini AI can be a practical and innovative complement to traditional writing instruction, especially in EFL classrooms where teacher feedback may be limited.

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